

**Work Order ID 89934**

September-13-12 8:28:19 AM

**\*89934\***

Page 1

Item ID: D412-742-043

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Replacement Float Skidtube

Start Date: 9/13/12 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 10/12/12 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: MLJ Date: 12/09/13 Tooling:

Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D3391

I

100

0.00

**\*100\***


DOCUMENT CONTROL

DC

0.00

Document Control

Memo

If D412-742-043 is a W/O on it's own,  
Photocopy bluefile and create labels per PPP D412-742-043 CHG005N/A 

# Work Order ID 89934

**\*89934\***

Page 2

September-13-12 8:28:19 AM

Item ID: D412-742-043

Accept

**\*N900040100\***

Setup

Start

**\*NS1\***

Revision ID:

Stop

**\*NS2\***

Item Name: Replacement Float Skidtube

Start Date: 9/13/12 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 10/12/12 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run

Start

**\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop

**\*NR2\***

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

110

0.00

**\*110\***

HandFinish

HandFinishing

0.00

Hand Finishing

Memo

1-Install tubes together and seal them all the way around using Sikaflex 241/291. Ensure tube ends line-up with saddle holes for proper alignment. using 7/16" "T" Pins.  
A/RSikaflex-241/-291 M123025  
Expiry date: 13103

2-Install wearplates as per Dwg D3391. Ensure that plastic washers are against wearplate, then topped with the SS washer. Seal all bolts with sikaflex except ones with inserts on inside of tube ,hand tighten only bolts with no sikaflex.

A/RSikaflex-241/-291 M1123025  
Expiry date: 13103

3-Remove "T" pins once sikaflex is dry.

4-Coat all exposed hardware with LPS Procyon. Remove any excess off with MEK degreaser.  
A/RLPS Procyon M1114596

1 x 6 15 4/4/20

**Work Order ID 89934**

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**\*89934\***

Page 3

Item ID: D412-742-043

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Replacement Float Skidtube

Start Date: 9/13/12 Start Qty: 1.00 **\*1\***

Cust Item ID:

Required Date: 10/12/12 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

120

QC5- Inspect part completeness to step on W/O

0.00

**\*120\***

QC

Memo

0.00

Quality Control

130

Packaging

0.00

**\*130\***

PDP 90700



6/11/23

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D412-742-043


Location: \_\_\_\_\_

PPP Rev: \_\_\_\_\_

140

QC21- Final Inspection - Work Order Release

0.00

**\*140\***12/11/23 

QC

Memo

0.00

Quality Control

me  
12-11-23

# Picklist Print

September-13-12 8:28:17 AM

Page 1

Work Order ID: 89934

Parent Item: D412-742-043

Parent Item Name: Replacement Float Skidtube

Start Date: 9/13/12

Required Date: 10/12/12

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev A 05.10.13 New Issue KJ/JLM  
 IPP Rev 06.02.13 ECN 773 dwg @ rev.D EC  
 IPP Rev:C 07-05-28 As per Rev F JLM  
 IPP Rev:D 07-12-04 ECN 1072 DD verified by:JLM  
 IPP Rev:E 08-09-08 ecn 08-510 DD verified by:EC IPP Rev:F 11.11.01 as per DSI9517  
 REV.B DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D3391-021 Fwd Tube Assembly		Manufactured	No			110	Each	0.0000					
D3391-023 Mid Tube Assembly		Manufactured	No			110	Each	0.0000					
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				FP		2							
				GA		-2							
D3391-025 Aft Tube Assembly		Manufactured	No			110	Each	0.0000					
AN3C4A BOLT		Purchased	No			110	Each	1,722.0000	24				
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST350		1722							
				120187		31							
				120521		28							
				120769		38							
				121205		61							
				121556		8							
				122151		42							
				122416		4							
				122814		1510							

B86771 (1x) MU 12/1/20

B90074 (1x) MU 12/1/20

B89250 (1x) MU 12/1/20

24 MU 24 12/1/20

Y24

# Picklist Print

September-13-12 8:28:18 AM

Page 2

Work Order ID: 89934

Parent Item: D412-742-043

Parent Item Name: Replacement Float Skidtube

Start Date: 9/13/12

Required Date: 10/12/12

Start Qty: 1.00

Required Qty: 1.00

AN3C6A  
BOLT Purchased No

110 Each 1,139.0000 10

9/11 10/11/20

Location	Loc Qty	Loc Code
FP001	1	
111982	1	
ST351	1138	
111982	2	
116419	23	
116549	2	
116704	12	
117619	10	
117688	1	
117872	5	
118422	13	
119449	21	
120423	3	
120693	42	
121682	4	
122416	500	
122599	500	

AN3C7A  
BOLT Purchased No

110 Each 218.0000 4

9/11 10/11/20

Location	Loc Qty	Loc Code
ST351	218	
113149	14	
116169	1	
117313	10	
117619	12	
117688	6	
119749	1	
120731	8	
121185	14	
121541	2	
122141	100	
122800	50	

X 3  
X 1

September-13-12 8:28:18 AM

Shop Packet Print

Page 2

# Picklist Print

September-13-12 8:28:18 AM

Page 3

Work Order ID: 89934

Parent Item: D412-742-043

Parent Item Name: Replacement Float Skidtube

Start Date: 9/13/12

Required Date: 10/12/12

Start Qty: 1.00

Required Qty: 1.00

AN960C10L washer ☒ NAS1149C0332R Purchased No

110 Each 21.0000 38 38 12/11/20

Location	Loc Qty	Loc Code
ST	21	M123355
107534	21	

x38

D4095-041 Manufactured No  
Wearplate Assembly

110 Each 29.0000 1 1 12/11/20

Location	Loc Qty	Loc Code
FP001	23	
83809	7	
85616	4	
85844	12	
FP002	6	
85939	6	

x1

D4095-043 Manufactured No  
Wearplate Assembly

110 Each 22.0000 1 1 12/11/20

Location	Loc Qty	Loc Code
FP001	22	B92345
83479	7	
85615	3	
85843	12	

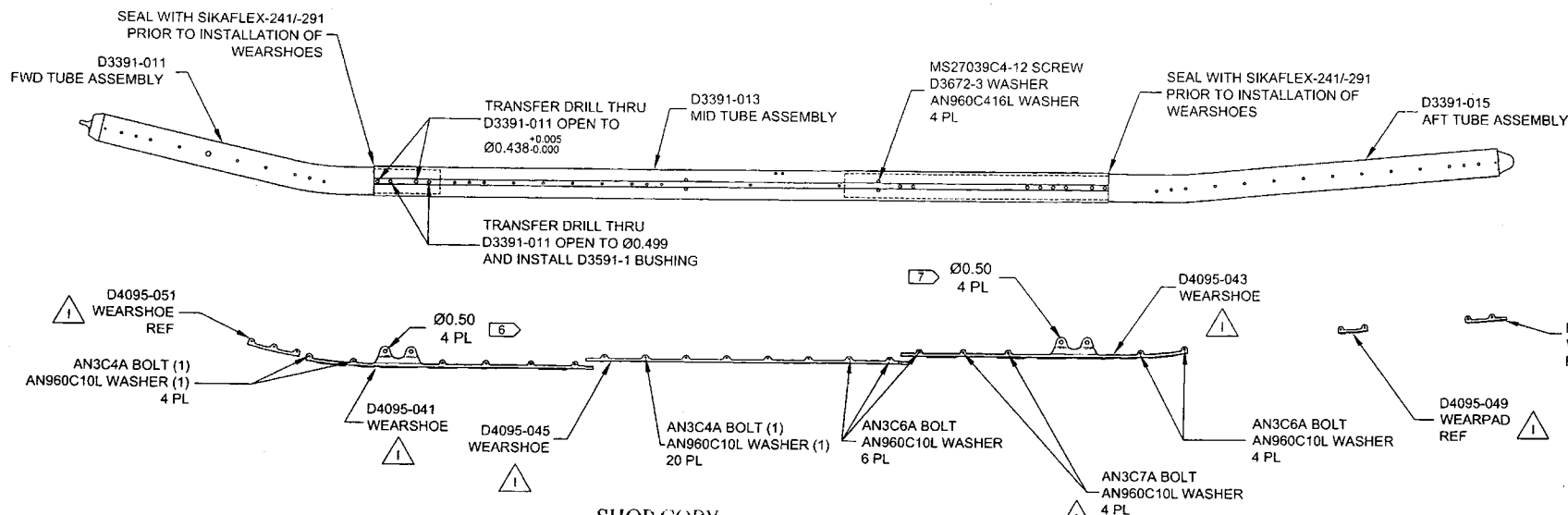
x1

D4095-045 Manufactured No  
Wearplate Assembly

110 Each 21.0000 1 1 12/11/20

Location	Loc Qty	Loc Code
FP001	21	
77737	1	
84081	3	
85614	7	
86244	10	

x1



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SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 89934 MLJ  
12/09/13


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2011-11-04  
ECN# 11-662

# D3391-041 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

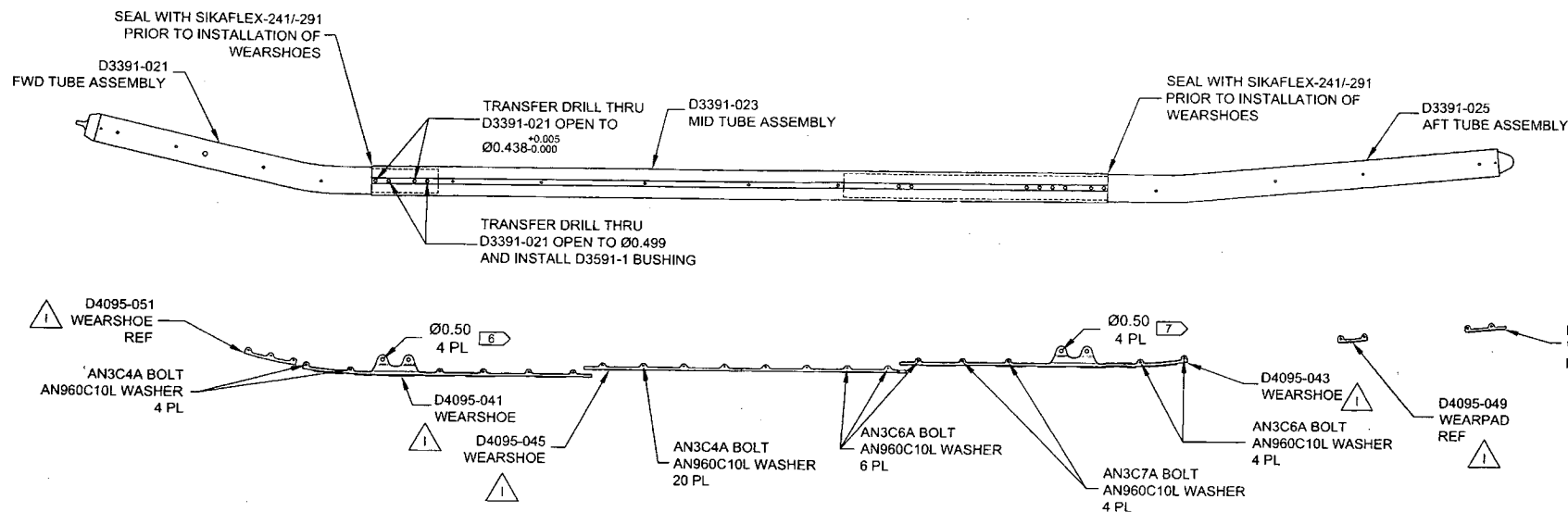
QTY	PART NUMBER	DESCRIPTION
X	D3391-041	FLOAT SKIDTUBE ASSEMBLY
1	D3391-011	FWD TUBE ASSEMBLY
1	D3391-013	MID TUBE ASSEMBLY
1	D3391-015	AFT TUBE ASSEMBLY
2	D3591-1	BUSHING
4	D3672-3	WASHER
1	D4095-041	WEARSHOE
1	D4095-043	WEARSHOE
1	D4095-045	WEARSHOE
1	D4095-047	WEARPAD
1	D4095-049	WEARPAD
1	D4095-051	WEARSHOE
24	AN3C4A	BOLT
10	AN3C6A	BOLT
4	AN3C7A	BOLT
38	AN960C10L	WASHER
4	MS27039C4-12	SCREW
4	AN960C416L	WASHER

## GENERAL NOTES

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS.PROCYON" AFTER FINAL ASSEMBLY. CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL 0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.
- 6) FIT D4095-041 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL 0.50 HOLES FROM SADDLE TO D4095-041
- 7) FIT D4095-043 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH THE APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL 0.50 HOLES FROM SADDLE TO D4095-043

I	REMOVE GASKETS AND REPLACE ALL WEARSHOES; PARTS LIST UPDATE, ZN A8-1, ZN A8-2, ZN A6-4, ZN B6-8; LPS-3 COATING REMOVED FROM NOTE 2, ZN A3-1, ZN A3-2, REMOVED INSERT AELS-1032-130, ZN B6-4, B2-4, C7-8, C3-8; REMOVED HOLES, ZN D6-4 ZN D2-4, ZN D7-8, ZN D3-8	XDF	11.10.13
H	DRAWING UPDATED TO CURRENT STANDARDS. SHT 1 PL ADDED D3591-1 BUSHING. ZN C6 0.438 DIM WAS 4 PL. ADDED 0.499 DIM AND D3591-1 BUSHING. SHT 2 PL ADDED D3591-1 BUSHING. ZN C6 0.438 DIM WAS 4 PL. ADDED 0.499 DIM AND D3591-1 BUSHING. (FOR FURTHER INFO SEE DSI 9364 & NCR 08-074)	AJS	08.08.20
G	REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY	DC	07.07.31
F	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021	PH	07.01.18
E	CHANGE TOLERANCE, EASE MANUFACTURE	PH	06.04.25
D	UPDATE TOLERANCE, CHANGE HOLE SIZE	PH	06.01.23
C	LENGTHEN AFT EXTENSION	PH	05.09.27
B	DRAWING UPDATES	PH	05.06.10
A	NEW ISSUE	PH	05.02.07
REV.	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	XDF	KENT, WA	
CHECKED		DRAWING NO.	REV.
MFG. APPR.		D3391	SHEET 1 OF 8
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89934



# **D3391-043 ASSEMBLY**

## **D3391-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST**

QTY	PART NUMBER	DESCRIPTION
X	D3391-043	FLOAT SKIDTUBE ASSEMBLY
1	D3391-021	FWD TUBE ASSEMBLY
1	D3391-023	MID TUBE ASSEMBLY
1	D3391-025	AFT TUBE ASSEMBLY
2	D3591-1	BUSHING
1	D4095-041	WEARSHOE
1	D4095-043	WEARSHOE
1	D4095-045	WEARSHOE
1	D4095-047	WEARSHOE
1	D4095-049	WEARSHOE
1	D4095-051	WEARSHOE
24	AN3C4A	BOLT
10	AN3C6A	BOLT
4	AN3C7A	BOLT
38	AN960C10L	WASHER

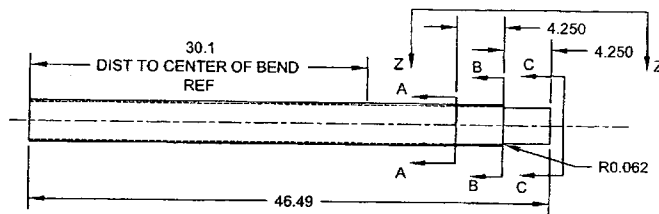
## **GENERAL NOTES**

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON"
- 3) AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 4) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) UNITS: INCHES UNLESS OTHERWISE NOTED
- 6) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.
- 7) FIT D4095-041 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-041
- 8) FIT D4095-043 TO SKIDTUBE WITH D2571 AND D2572 SADDLES INSTALLED WITH THE APPROPRIATE HARDWARE AND SPACERS IN FORWARD AND AFT HOLES AND TRANSFER DRILL Ø0.50 HOLES FROM SADDLE TO D4095-043

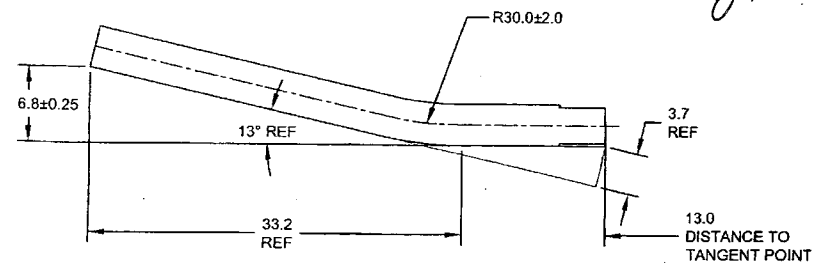
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MFG. APPR.		D3391	SHEET 2 OF 8
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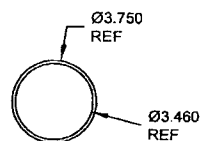




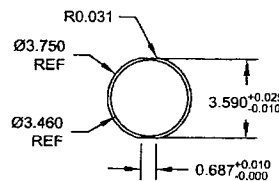
**D3391-1 CUTTING DETAIL**  
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



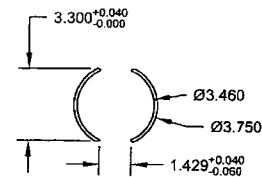
**D3391-011/-021 BENDING DETAIL**  
(MAKE FROM D3391-1)



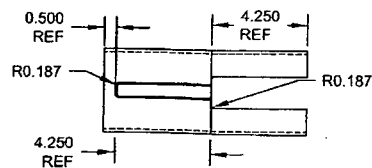
**SECTION A-A**  
SCALE 2X



**SECTION B-B**  
SCALE 2X



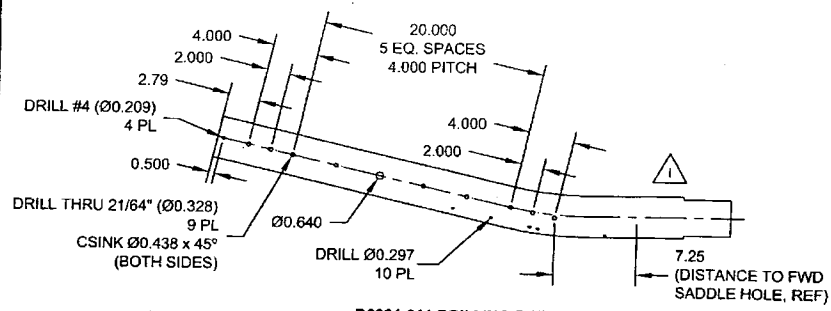
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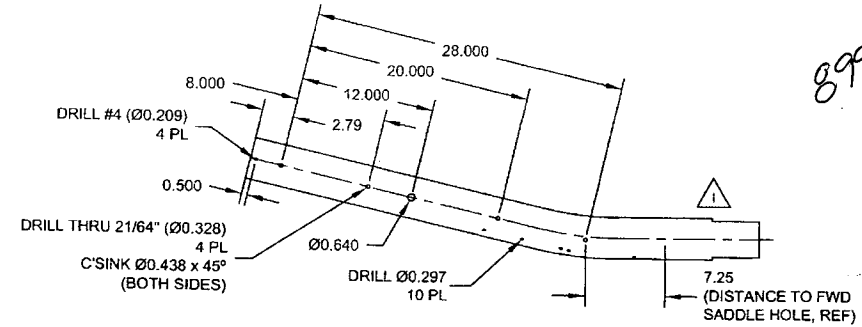
**VIEW Z-Z**  
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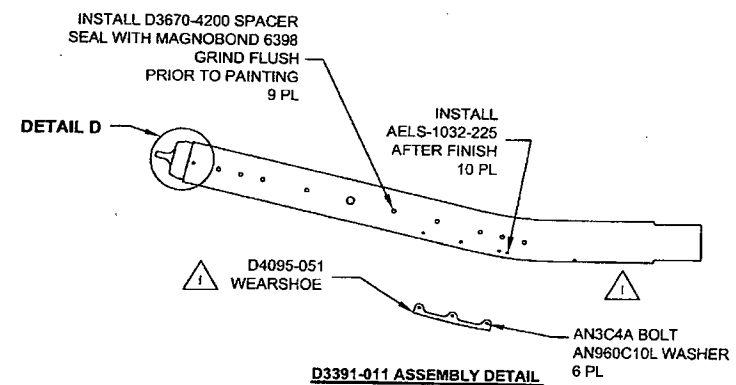
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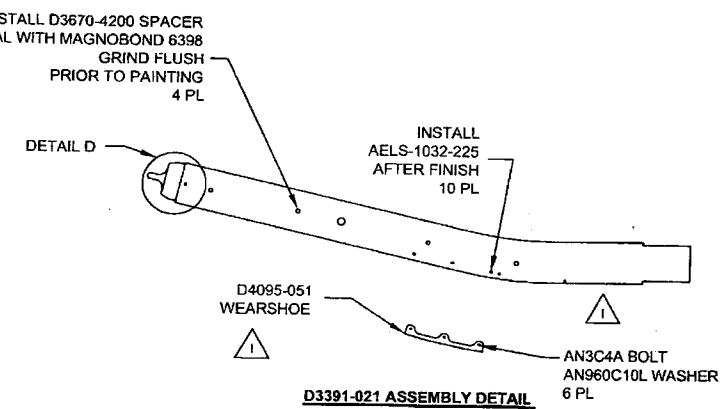
**D3391-011 DRILLING DETAIL**



**D3391-021 DRILLING DETAIL**



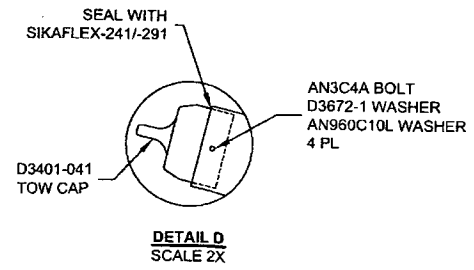
**D3391-011 ASSEMBLY DETAIL**



**D3391-021 ASSEMBLY DETAIL**

**D3391-011/-021 FWD TUBE ASSEMBLY PARTS LIST**

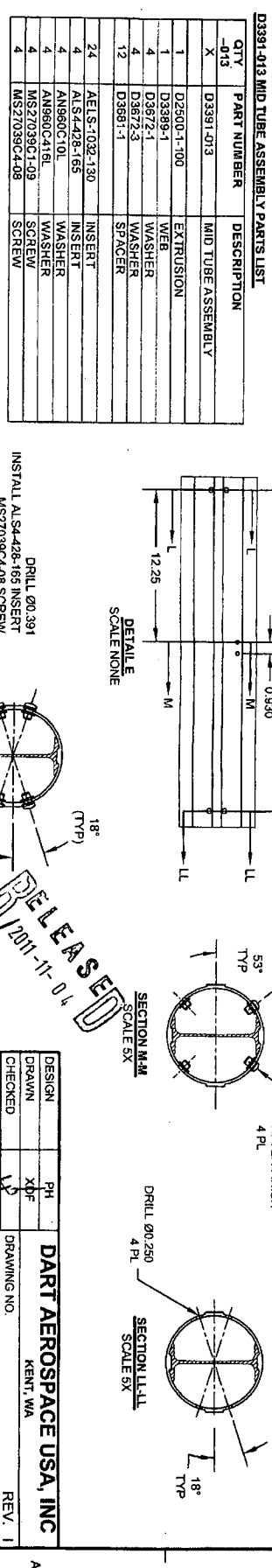
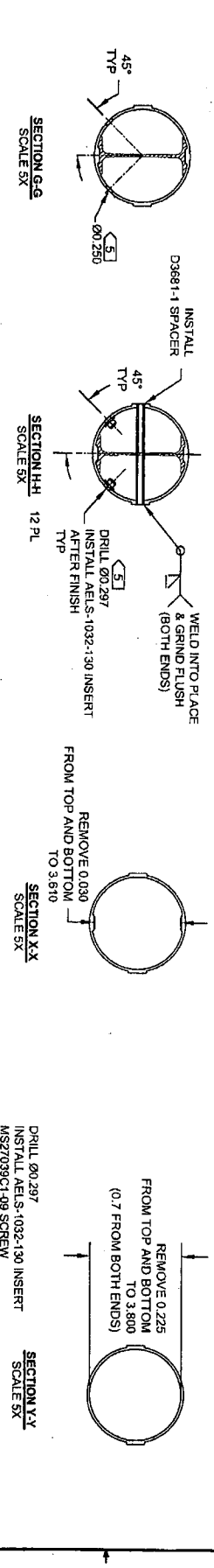
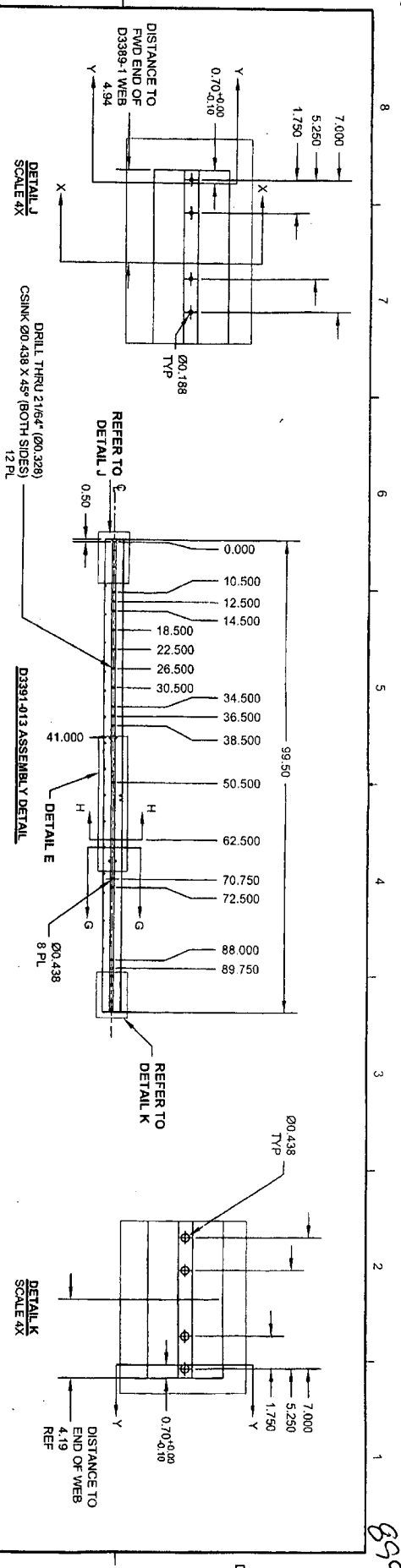
QTY - 011	QTY - 021	PART NUMBER	DESCRIPTION
X		D3391-011	FWD TUBE ASSEMBLY
	X	D3391-021	FWD TUBE ASSEMBLY
1	1	D3401-041	TOW CAP
9	4	D3670-4200	SPACER
4	4	D3672-1	WASHER
1	1	D4095-051	WEARSHOE
1	1	D6013-047	FWD TUBE
10	10	AN3C4A	BOLT
10	10	AN960C10L	WASHER
10	10	AELS-1032-225	INSERT



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2011-11-04

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**D3391-013 MID TUBE ASSEMBLY PARTS LIST**

QTY	PART NUMBER	DESCRIPTION
1	D3391-013	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
4	D3672-1	WASHER
4	D3672-3	WASHER
12	D3681-1	SPACER
24	AELS-1032-130	INSERT
4	AL-S4-428-165	INSERT
4	AN980C-10L	WASHER
4	AN980C-41BL	WASHER
4	MS27039C1-09	SCREW
4	MS27039C4-08	SCREW

**D3391-013 MID TUBE ASSEMBLY**  
 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION  
 2) INSTALL D3391-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER OSI 015  
 3) WELDING: PER DART OSI 004

**DART AEROSPACE USA, INC**  
 KENT, WA

DESIGN	PH	REV. 1
DRAWN	XDF	
CHECKED		
MFG. APPR.		
APPROVED		
DE APPR.		
DATE	11.10.13	

**412 FLOAT SKIDTUBE**  
 SHEET 6 OF 8  
 SCALE  
 NTS

RELEASED  
 2011-11-04

8 7 6 5 4 3 2 1 89

7.000  
5.250  
1.750

0.70<sup>+0.00</sup><sub>-0.10</sub>

DISTANCE TO FWD END OF D3389-1 WEB 4.94

Ø0.188 TYP

DETAIL J  
SCALE 4X

10.500

REFER TO DETAIL J

0.50

99.50  
91.500  
89.750  
88.000  
72.500  
70.750  
62.500  
50.500  
36.500  
22.500

DRILL THRU 21/64" (Ø0.328)  
CSINK Ø0.438 X 45° (BOTH SIDES)  
5 PL

Ø0.438 8 PL

REFER TO DETAIL K

D3391-023 ASSEMBLY DETAIL

7.000  
5.250  
1.750

Ø0.438 TYP

0.70<sup>+0.00</sup><sub>-0.10</sub>

DISTANCE TO END OF WEB 4.19 REF

DETAIL K  
SCALE 4X

45° TYP

Ø0.250

SECTION G-G  
SCALE 5X

INSTALL SPACER D3681-1

45° TYP

WELD INTO PLACE & GRIND FLUSH (BOTH ENDS)

DRILL Ø0.297  
INSTALL AELS-1032-130 INSERT AFTER FINISH TYP

SECTION H-H  
SCALE 5X

5 PL

REMOVE 0.030 FROM TOP AND BOTTOM TO 3.610

SECTION X-X  
SCALE 5X

REMOVE 0.225 FROM TOP AND BOTTOM TO 3.800 (0.7 FROM BOTH ENDS)

SECTION Y-Y  
SCALE 5X

**D3391-023 MID TUBE ASSEMBLY PARTS LIST**

QTY - 023	PART NUMBER	DESCRIPTION
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AELS-1032-130	INSERT

**D3391-023 MID TUBE ASSEMBLY**

1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION

2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015

3) WELDING: PER DART QSI 004

DESIGN PH  
DRAWN XDF  
CHECKED  
MFG. APPR.  
APPROVED  
DE APPR.  
DATE 11.10.13

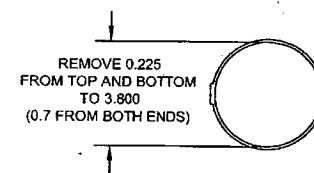
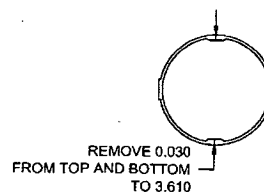
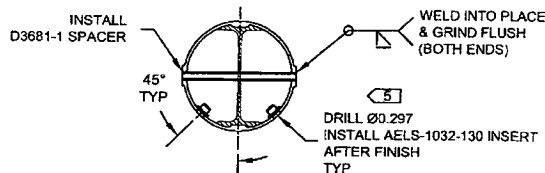
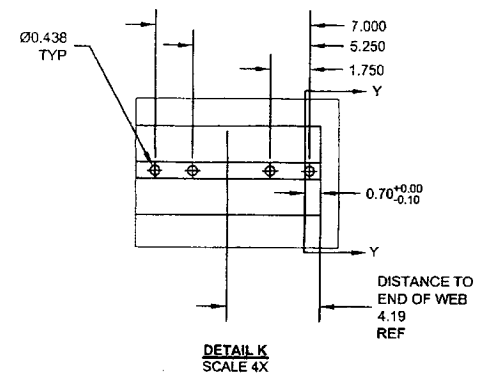
**DART AEROSPACE USA, INC**  
KENT, WA

DRAWING NO. D3391  
TITLE 412 FLOAT SKIDTUBE  
SCALE NTS

REV. 1  
SHEET 6 OF 8

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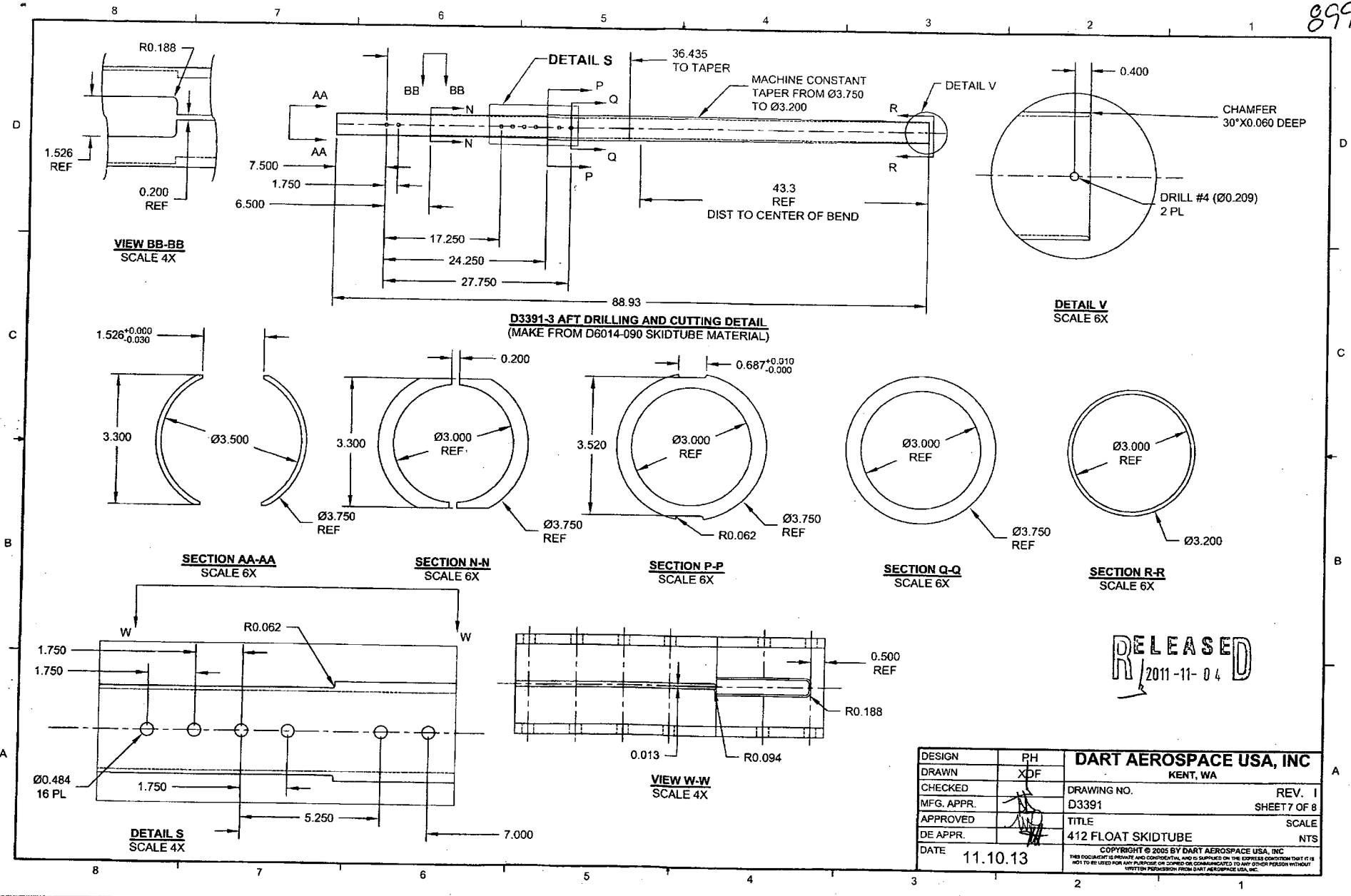
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QTY -	PART NUMBER	DESCRIPTION
023		
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AELS-1032-130	INSERT

DESIGN	PH	<b>DART AEROSPACE USA, INC</b> KENT, WA DRAWING NO. D3391 TITLE 412 FLOAT SKIDTUBE SCALE NTS
DRAWN	XDF	
CHECKED		
MFG. APPR.		
APPROVED		
DE APPR.		
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**D3391-015 BENDING AND DRILLING DETAIL**  
(SEE CBORE DETAIL BELOW)

INSTALL D3670-4200 SPACER SEAL WITH MAGNOBOND 6398 GRIND FLUSH PRIOR TO PAINTING  
14 PL

**D3391-015 ASSEMBLY AND CBORE DETAIL**  
(SEE TABLE)

**D3391-015-025 AFT TUBE ASSEMBLY PARTS LIST**

QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X	X	D3391-015	AFT TUBE ASSEMBLY
		D3391-025	AFT TUBE ASSEMBLY
1	1	D2646	AFT CAP
14	4	D3670-4200	SPACER
2	2	D3672-1	WASHER
1	1	D4095-049	WEARPAD
1	1	D4095-047	WEARPAD
1	1	D6014-090	AFT TUBE
14	14	AELS-1032-130	INSERT
8	8	AELS-1032-225	INSERT
4	4	ALS4-428-165	INSERT
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
10	10	AN960C10L	WASHER

CBORE HOLES MARKED CB1-CB4 AS FOLLOWS AND INSTALL AELS-1032-XXX AFTER FINISH AS NOTED

HOLE MARKED	QTY D3391-015	QTY D3391-025	CBORE	P/N
CB1	8	8	Ø0.430 X 0.170	AELS-1032-225
CB2	4	4	Ø0.430 X 0.170	AELS-1032-130
CB3	6	6	Ø0.430 X 0.040	AELS-1032-130
CB4	4	4	NONE	AELS-1032-130

**D3391-025 BENDING AND DRILLING DETAIL**  
(SEE CBORE DETAIL BELOW)

INSTALL D3670-4200 SPACER SEAL WITH MAGNOBOND 6398 GRIND FLUSH PRIOR TO PAINTING  
4 PL

**D3391-025 ASSEMBLY AND CBORE DETAIL**  
(SEE TABLE)

**RELEASED**  
2011-11-04

**DESIGN PH**  
**DART AEROSPACE USA, INC**  
KENT, WA

**DRAWN** XDF

**CHECKED**

**MFG. APPR.**

**APPROVED**

**DE APPR.**

**DATE** 11.10.13

**DRAWING NO.** D3391

**TITLE** 412 FLOAT SKIDTUBE

**REV. I**  
SHEET 8 OF 8

**SCALE**  
NTS

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